to Europe on several occasions, but the price obtained has always been so low as not to repay the cost of transport.

Several trials have been made with other kinds of rubber. *Hevea Brasiliensis* (Para rubber) has been planted repeatedly, but without success, the climate being too dry. *Ficus elastica*, *L. Madagascariensis*, and an *Euphorbia sp.* (from Madagascar) have done fairly well. *Castilloa elastica*, *Hancornia speciosa*, and *Willoughbeia* were each tried once, but the seed did not germinate. *Manihot Glaziovii* (Ceara rubber) was first planted at Tanga in 1891. There are at present about 20,000 trees, but it is feared that it will not pay as the atmosphere is too moist. It is thought probable that Ceara rubber will do better in Donde-Barikiwa (Kilwa district), where a small experimental plantation has lately been opened.

Forestry.—The numerous rivulets and creeks, which form the mouths of the Rufiji River, and which cover an area of 100,000 acres, are lined by extensive mangrove swamps producing the timber known as *boriti*, or Zanzibar rafters. It is the opinion of various botanists that when traders—both European and native—are allowed to cut *boritis* at will, the mangroves in course of time die out, as large numbers of big trees are usually cleared from one spot, thus exposing the young plants to the direct rays of the sun, which is said to kill them. In consequence, the only trees now to be found in various parts of the Rufiji Delta are *Phoenix reclinata Osmunda sp.*, and *Barringtonia racemosa*.

In order to preserve and, if possible, to increase the present supply of *boritis*, a forest officer and three wood-rangers have been stationed in the Rufiji sub-district. The trees are felled under their supervision, and the timber is sold by the German Government.

The custom of systematically stripping a part of the bark from the mangroves, as sometimes practised in the East and West Indies, is not permitted, as it is held that such a course must be injurious to the trees. After the timber has been felled, the bark is stripped and sold.

The regulations issued for the preservation of the woods in the Usambara Hills have done much to prevent the needless felling of valuable timber. Oaks, firs and other European trees are now being planted under the auspices of the Woods and Forests Commission. Similar regulations will shortly be issued for other parts of the colony.

Roads.—Broad roads have been made all over the colony, and it is now possible to drive from Dar-es-Salaam to Lakes Victoria Nyanza and Tanganyika, from Tanga to Kilima Njaro, and from Kilwa and Lindi to Lake Nyasa.

Surveys.—A trigonometrical survey of East and West Usambara has been made, and a map of the former (Handei) is about to be printed. Much topographical work has also been done in various parts of the colony, notably in Uhehe (Hauptmann von Prittwitz), in Usagara (Dr. Stuhlmann), and between the Tanganyika and Nyasa Lakes (Dr. Kohlschüter).

A Commission for the delimitation of the boundary between the Independent State of the Congo and German East Africa left the coast for Lake Kivu in September last. On the completion of the survey of the western frontier, it is hoped that an Anglo-German Commission will be organised to delimit the boundary between the Uganda Protectorate and this colony. The frontier between the British East Africa Protectorate and German East Africa has now been finally settled. An interesting book on the geology of portions of German East Africa, by Dr. Bornhard, was published during the course of the year.

Valuable work is at present being done by Drs. Busse and Kandt. The former is making a study of all the plants indigenous to the country, whilst the latter is exploring the little-known regions between the Tanganyika and Victoria Nyanza Lakes. To him belongs the honour of having discovered the sources of the Kagera-Nile.

Dr. Maurer, after spending three years in German East Africa, has written a lengthy report on the result of his observations, which is being published by the Hamburg Marine Observatory. A successor to Dr. Maurer was appointed in October last. Meteorological observations are regularly taken at a number of places.

Museums.—A museum of products, plants and minerals was established at Dar-es-Salaam in 1899, and has since been increased in size. A collection of the lepidoptera and coleoptera of German East Africa is also being made. The ethnographical museum in Berlin has been greatly enriched by collections received from the colony.

British East Africa and Uganda Protectorates.

Tsetse Fly Disease (*Ngana*).—Mr. Stordy reports that the extent of the tsetse fly belt may be said to be from Mtoto Andei to Simba, a distance of, roughly, 90 miles. The fly is migratory in tendency, so that no well-defined line on the map can be drawn which could safely exclude the possibility of its presence. The fly, however, has never been located further inland than Muani (a halting station in the Kiu Hills on the old caravan route). When studying the causes which rendered the island of Mombasa uninhabitable for horses, Mr. Stordy ascertained that an organism, the morphology of which was identical with that found in animals suffering from tsetse fly disease, was found in donkeys which had been working for some time on the island. The disease has been practically eradicated by the advent of the Uganda Railway, with its excellent service of horse-boxes and fly-proof gauze windows.

Domestication of the Zebra.—Mr. Stordy urges the advisability of utilising for purposes of transport an animal which is naturally immuned against the ravages of the tsetse fly disease and horse sickness, such, for instance, as the zebra, of which there is an enormous number. He adds:—

"I am convinced that, should the Government enter upon a scheme for its domestication, it would prove one of great value, and that at no very distant date a supply of animals would be available, not only for African service, but also for army transport work at home or in India. The great difficulty so far has been the domestication of the adult animal. I have, however, to suggest the following plan for obtaining a possible way out of the difficulty: I would propose that a kraal be formed within a district where firearms are non-existent, as in the case of a preserve. The kraal would have two extending arms leading from the open country into it, and would be constructed large enough to hold a herd of, say, 50 adult animals. Several mounted Cape boys would be employed, whose duty, in the first instance, would be to accustom the zebras in the neighbourhood of the kraal to the sight of horses or mules. If my anticipations prove correct, the zebras will in the course of a few days follow the horses or mules, and advantage could be taken of this to lead them into the kraal. If it were, however, found that they would not be led it would be necessary to have them driven in by the Cape boys, assisted by swift-footed natives.

"The animals being in this way confined within the kraal they would naturally propagate their species. It is with the offspring that I would propose that the experiment in the way of domesticity would begin. As is well known, it has been found nearly impossible to rear a zebra foal apart from its mother. I would not propose to separate them, they would live along with and be nurtured by their mothers. A few months after birth the young animals could be caught and by various ways become accustomed to the sight and presence of man. I am very hopeful that in this way a number of young animals of both sexes would become domesticated and prove useful for transport service, and also in propagating their species. The second generation, if my experiment prove in any way successful, would be even more domesticated than their parents, and I am sure that in course of time a large supply of the domesticated zebra would be forthcoming for the future use of transport work at home and abroad. The initial cost might be a little more than the first results might justify, but there is no reason to doubt that in the long run the ultimate results would far more than compensate for the initial expenditure."

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—The John Lucas Walker Studentship in Pathology has been awarded to Mr. H. C. Haslam. Dr. E. S. Sladen, who has recently been serving in the Ashanti war, has been reinstated as a second student.

The board for moral science propose the assignment of certain rooms connected with the temporary pathological laboratory for practical work in experimental psychology, under the direction of Dr. Rivers.

A syndicate is to be appointed to consider the question of affording official recognition and support to the work now carried on by the Cambridge Appointments Association.

Mr. W. Bateson, F.R.S., of St. John's College, is to be reappointed deputy for the professor of zoology and comparative anatomy during the ensuing academical year.

WE are glad to see that the London County Council has this year again arranged special beds of plants in Battersea, Ravenscourt and Victoria Parks, with a view to encourage the study of botany among pupils in elementary and secondary schools. At each of these parks about twenty beds are arranged near the paths, each bed containing specimens of a distinct order of plant, and each plant being labelled with its common name and its Latin name. In order to further assist the teaching and study of plants, arrangements have been made by which teachers may obtain orders from the Council's Technical Education Board which will enable them to secure specimens suitable for teaching purposes.

OUTDOOR work by students appears to be carried on in connection with several institutions on the other side of the Atlantic. We notice in *Science*, for instance, that the biological department of the University of California has just commenced a systematic biological survey of the coast of that state. Temporary headquarters are established at San Pedro, and the work during this summer will be carried south from Pt. Conception toward San Diego. A gasoline launch, which has been obtained for the season, will be fitted out with apparatus for dredging, sounding and making observations on temperature, salinity, specific gravity, &c. The work will be carried on by the members of the department and graduate students, together with a number of investigators who have already interested themselves especially in the west coast faunas. A party of students from Harvard University will undertake, this summer, an expedition to Venezuela for botanical and zoological research. We see also that the Mining School of McGill University will this year carry on its summer work in British Columbia. The class has just left Montreal to go out to the Pacific coast, visiting the various collieries along the line of the railway and on Vancouver Island. The party will then go into southern British Columbia for the purpose of studying the mineral deposits of the Slocan, Trail Creek and Boundary Districts, and, returning by the Crows' Nest Pass route, will visit the coal mines at Fernie Hethbridge, reaching Montreal again about the middle of June.

AT a meeting of the Court of Governors of University College, Liverpool, on Saturday last, the following resolution was passed :—"That, while gratefully acknowledging the advantages which have accrued to University College, Liverpool, by its association with the Victoria University, this Court is of opinion that a University should be established in the city of Liverpool, and will welcome a scheme with this object upon an adequate basis." In moving this resolution, Mr. Robert Gladstone, who presided, remarked that the success of the college showed the need for a University. The fees from students had increased from 700*l.* in its first year to 9500*l.* this year. Within the last few years 22,000,000*l.* sterling had been given by private individuals in the United States towards founding Universities and colleges. Was it not the duty of the wealthy people of this country to follow that excellent example? If they did not they could hardly complain if trade passed away and our prosperity diminished. We had already had a blow from German chemists. The great indigo industry in India, which had made the fortunes of many people and been a great source of trade, was threatened with extinction by chemical discoveries made in Germany. It was a misfortune they were not made in this country, as they might have been if we had been better provided with means of investigation. He hoped that the people of Liverpool who had been indifferent to the progress of the college would awake to a better state of mind, and that by their assistance they might succeed in putting Liverpool in as pre-eminent a place with regard to learning as she now enjoyed with reference to commerce.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, March 28.—"Further Observations on Nova Persei, No. 2." By Sir Norman Lockyer, K.C.B., F.R.S.

In continuation of previous papers, the observations of the Nova made at Kensington are brought to midnight of March 25. Since the last paper of March 7, estimates of the magnitude of the Nova have been made on ten evenings, visual observations of the spectrum on eight evenings, and photographs of the spectrum on four evenings.

Since March 5 the magnitude of the star has been gradually decreasing, but between the nights of the 24th and 25th the light of the Nova decreased very suddenly, dropping from 4·2 to 5·5 in twenty-four hours, and becoming only just visible as a naked-eye star.

The colour of the Nova has undergone some distinct changes since the observation on March 5 last, when it was shining with a clarety-red hue. On the 9th and 10th it was observed to be much redder, due probably to the great development of the red C line of hydrogen.

On the 23rd and 24th the star was noted as yellowish-red, while on the 25th (after the sudden drop in magnitude) it was very red, with, perhaps, a yellow tinge.

On March 6 the photographs were very similar to those obtained in the earlier stages, the only apparent difference being in the relative intensity of the bright hydrogen lines as opposed to those having other origins, most of which have been shown to be probably due to iron and calcium. The hydrogen lines have sensibly brightened, while the others have become much feebler.

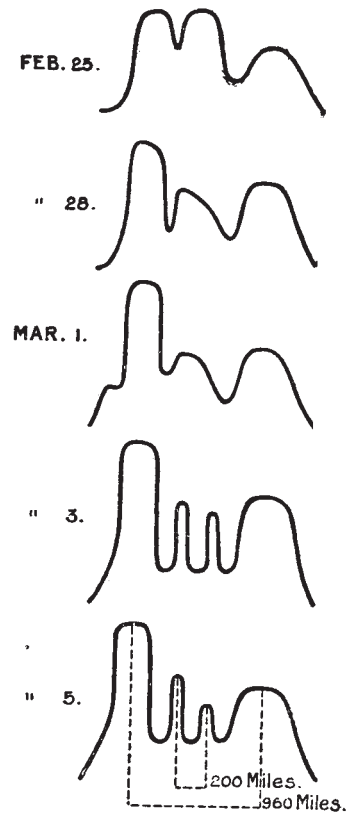

FIG. 1.—Light curve of Hβ (6-inch objective prism).

The photograph of March 10 shows a further dimming of the bright lines other than those of hydrogen.

On March 25, when the next good photograph was taken, the spectrum had undergone great modifications. The hydrogen lines are still very bright, though they do not show the structure which they did in the photographs taken between February 25 and March 10. The bright lines other than those of hydrogen, which are seen in the earlier photographs, have now disappeared, and other lines become visible. The continuous spectrum has also greatly diminished.

Approximate determinations of the wave-length of these new lines have been made by Mr. Baxandall by comparison with lines of known wave-length in the spectra of α and ε Persei photographed with the same instrument.

The lines at λ 3870 and 4650 are perhaps identical with those observed by von Gothard[1] in the spectrum of Nova Aurigæ

[1] *Ast. Phys. Jour.*, vol. xii., 1893, p. 51.